

### Abstract

Methods and devices for encoding in parallel a set of data bits for use in communications systems. The set of data bits to be encoded is divided into two subsets with the first subset being encoded in parallel using the second subset. The first subset is also encoded in parallel using the second subset. The first subset is also encoded in parallel using a subset of an immediately preceding set of data bits. Parallel encoding is realized by using an encoding module utilizing multiple single bit submodule. Each submodule receives a single bit from the first subset and either the second subset or the subset of the immediately preceding data set. Each single bit submodule produces a pair of output bits from the convolutional encoding of a single bit of the first subset and either the second subset or the subset of the immediately preceding data set. The multiple single bit submodules operate in parallel to simultaneously and collectively produce a set of data bits.